No. 676,711. Patented June 18, 1901.

J. M. BARNAY.

DRAWING PEN.

(Application filed Oct. 10, 1900.

(No Model.)

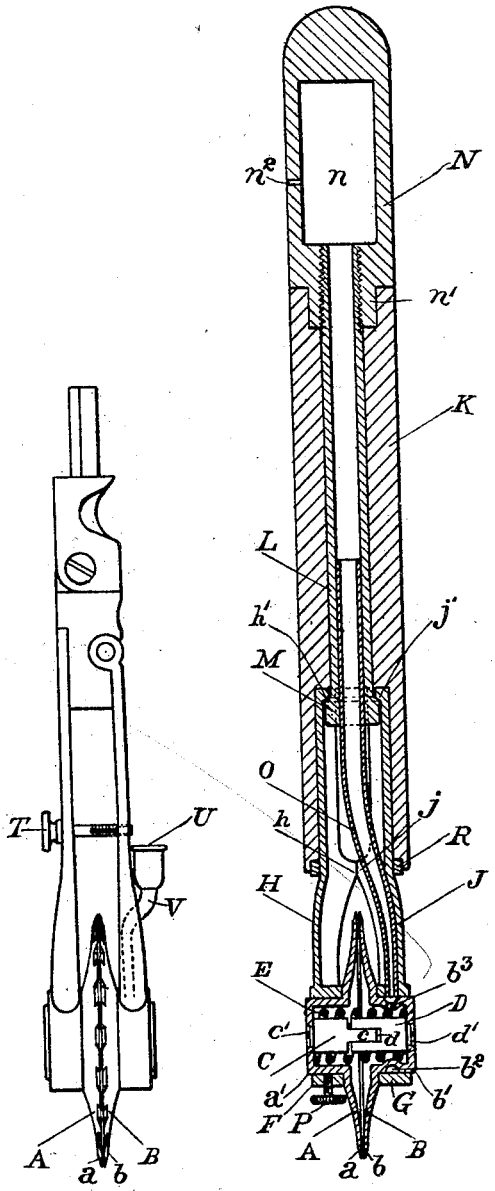

Fig. 1.

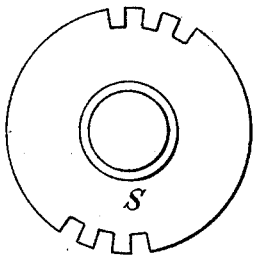

Fig. 3.

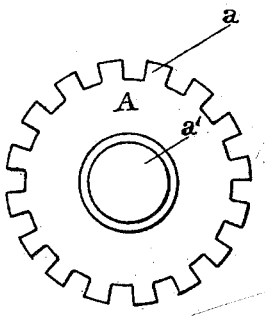

Fig. 2.

Fig. 4.

Witnesses.

F. A. Linsley

H. B. Van Name.

Inventor.

John M. Barnay

UNITED STATES PATENT OFFICE.

JOHN M. BARNAY, OF NEW HAVEN, CONNECTICUT.

DRAWING-PEN.

SPECIFICATION forming part of Letters Patent No. 676,711, dated June 18, 1901.

Application filed October 10, 1900. Serial No. 32,625. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. BARNAY, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Drawing-Pens; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to drawing-pens.

The object of my invention is to produce a pen by means of which a broken line or a line part broken and part full may be drawn without lifting the pen from the paper, or the pen may be caused to make a continuous full line.

I accomplish the object stated by employing a suitably-supported and adjustable revolving pen-wheel consisting of twin separable halves or sides presented to each other and possessing peripheral projections through which the ink reaches the paper.

Each constituent element of my invention is described in detail, and its individual office, together with the mode of operation of the whole, fully explained hereinafter.

Of the accompanying drawings, throughout which like letters mark like parts, Figure 1 is a vertical section; Fig. 2, an outer side view of one-half of the pen-wheel, and Fig. 3 an outer side view of a modification of the pen-wheel halves. Fig. 4 represents the invention adapted for use with dividers.

In the drawings the invention is shown considerably enlarged for the purpose of clearly illustrating the smaller parts in their proper positions.

Considering Figs. 1 and 2, letters A and B mark the left and right sides or halves of the pen-wheel. Of side A the letter *a* designates the teeth, and *a'* the trunnion or cylindrical portion. Of side B the letter *b* marks the teeth, and *b'* the trunnion. The two sides of the pen-wheel are hollow dish-form plates alike in all respects. The outside length of the extreme edges of the teeth is determined by the length desired of the successive portions of the broken line, and the interval between those portions measures the space between the teeth.

To accurately preserve the position of each half of the pen-wheel with respect to the other half and in order to maintain the corresponding teeth of each pair directly opposite each other, at the same time permitting the pen to be opened and closed, I introduce the two interacting blocks C and D. Block C has a flat tongue *c*, fitted carefully into the groove or recess *d* in block D. I do not limit myself to the special form of these parts shown. Block C is centrally secured within trunnion *a'* by a screw *c'*, and block D is similarly held in trunnion *b'* by the screw *d'*. It will now be seen and understood that after the pen-wheel halves have been circularly adjusted and the teeth accurately paired the screws are set up firmly, whereupon, although the sides may be easily moved toward or from each other, their positions with respect to each other cannot be rotatively altered.

Encircling the two blocks C and D within the hollow of the pen-wheel is the coil-spring E, to be again mentioned.

The trunnions fit and are revoluble within carriers or bearings F and G, which constitute the lower terminations of the duplicate lever-limbs H and J of the fork which straddles the pen-wheel. These limbs are shown in section in Fig. 1; but it will be fully understood that the portion removed is precisely like that remaining. On the side edges limb H has inward projections about midway of its length. One of these is shown (marked *h*) meeting a like projection *j* from the other limb. Thus each limb finds a fulcrum upon the other. The limbs pass upwardly within the body K of the penholder and near the top each has an inclined shoulder interiorly. These shoulders are designated by letters *h'* and *j'*. Between the ends of the limbs and passing upwardly within the body K is the adjusting-tube L. The upper extremity of this tube is threaded, and the lower end is provided with the tapering head M. Engaging the threaded portion of the adjusting-tube and forming the upper part of the penholder is the screw-cap N. This cap has an interior chamber *n*, which is used as an ink-magazine. The lower end of the cap is formed

into a nipple n' and let into the top of the body K to secure a tight joint.

The adjusting-tube L is hollow throughout, and passing up within it and fitting its interior closely is the ink-serving spout O, the lower mouth of which will be noted opening directly into the annular groove b^2 in the exterior of trunnion b'. It will be further observed that the ink-hole b^3 communicates with the interior of the pen-wheel, and it is believed to be clear that ink from the magazine n can readily gravitate into the pen-wheel. If necessary, a small air-hole n^2 may pierce cap, allowing air to enter and take the place of the outflowing ink.

The small set-screw P, through carrier F, serves to prevent the rotation of the pen-wheel when it is desired to draw a continuously full line.

The adjustment of the halves of the pen-wheel toward or from each other is accomplished by raising or lowering the adjusting-tube within the body by means of the screw-cap N. The adjusting-tube has the tapering head M. By drawing the tube upwardly the head is forced between the inclined shoulders of the lever-limbs and the carriers and pen-wheel plates approach each other against the force of the coil-spring E, which reacts to separate the parts as the head M is lowered between the inclined shoulders of the levers. Some little play is allowed the upper extremities of the lever-limbs within the body, as shown. The spaces through which these extremities move are very small usually.

The office of the ring R, encircling the lever-limbs at their fulcrums and let into the lower end of the body K, is to lock the limbs together. It will also be observed that the limbs curve outwardly from the ring, and any tendency to draw the limbs farther up into the body would be resisted. They cannot fall or slip out of their place in the body K, as they are constantly held up by the head M.

In Fig. 3 a modified pen-wheel plate S' is shown. Plates of this design are employed when it is desired to draw a line partly full and partly dotted or broken, and it is believed to be within the scope of my invention to vary the peripheral outline of the plates as desired.

Fig. 4 represents the pen and carriers adapted for use with dividers. This divider-pen is adjusted by means of the screw T, and the pen may be inked by separating the plates and applying the ink directly to the interior, or the cup U and duct V may be provided, the construction then being the same as that described, and shown by Fig. 1.

Having thus set out my invention in detail and its mode of operation, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a drawing-pen, the combination of the pen-wheel for drawing a single line consisting of the separable dish-form plates, a penholder, devices connected with the penholder and adapted to support the said plates rotatively, and means for adjusting the said plates toward or from each other.

2. In a drawing-pen, the combination of the revoluble pen-wheel consisting of separable dish-form plates, one of the said plates having an ink-hole through which ink may be introduced directly into the space between the plates, carriers or bearings supporting the plates, and devices constructed and arranged for adjusting the carriers and plates toward or from each other.

3. In a drawing-pen, the combination of a revoluble pen-wheel consisting of twin hollow dish-form plates, carriers or bearings supporting the plates, and devices constructed and arranged for adjusting the plates toward or from each other.

4. In a drawing-pen, the combination of a revoluble pen-wheel consisting of twin hollow dish-form plates, carriers or bearings supporting the plates, means adapted to hold the pen-wheel plates against revolution or to release them, and devices constructed and arranged for adjusting the carriers toward or from each other.

5. In a drawing-pen, the combination of a pen-wheel consisting of twin hollow dish-form plates having peripheral projections, and means for holding the said plates oppositely and for preventing rotative displacement.

6. In a drawing-pen, the combination of a revoluble pen-wheel consisting of twin hollow dish-form plates having peripheral projections, means for holding the plates oppositely and for preventing rotative displacement, carriers or bearings supporting the plates, and devices constructed and arranged to adjust the carriers toward or from each other.

7. In a drawing-pen, the combination of a revoluble pen-wheel consisting of twin hollow dish-form plates having peripheral projections and hollow cylindrical trunnions, carriers or bearings for supporting the plates by means of their trunnions, and devices constructed and arranged for adjusting the carriers toward or from each other, substantially as described.

8. In a drawing-pen, the combination of the fork consisting of the duplicate lever-limbs H and J, having the internal inclined shoulders near their upper ends, an adjusting-tube provided with a threaded extremity and a tapering head, the said head arranged in contact with the said inclined shoulders, a tubular penholder-body surrounding the adjusting-tube and the upper parts of the levers, and a screw-cap engaging the threaded end of the adjusting-tube, substantially as described.

9. In a drawing-pen, the combination of the pen-wheel plates having hollow trunnions, interacting tongue-and-groove blocks C and D secured within the trunnions, a coil-spring encircling the blocks, one of the said trunnions having a circumferential groove

and an ink-hole, carriers or bearings supporting the said plates by their trunnions, means constructed and arranged for adjusting the carriers, and an ink duct or spout secured to one of the carriers and opening into the groove of the said trunnion, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN M. BARNAY.

Witnesses:
F. A. LINSLEY,
H. B. VAN NAME.